The Family Guide to Successful Home Computing

Easy PC

ARE YOU READY?

Your easy introduction to making the most of your PC

JARGON BUSTER

The A-Z guide to computer terms for absolute beginners

STEP-BY-STEP

Windows made simple

EDUCATION

PC fun and learning for kids

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Easy PC

The family guide to successful home computing in 26 parts

The Family Guide to Successful Home Computing

Easy PC

GET SET!

All you need to know to keep your PC up and running

PART 2 OF 26 ISSUES FORTNIGHTLY

YOUR A-Z GUIDE
Understand the gobbledygook

ON THE INTERNET
Supermodels hit the PC catwalk

SUNNY DAYS
Weather watch with your computer

Inside Part 1

WINDOWS

The simple step-by-step guide to understanding Windows

JARGON BUSTER

Your A-Z to understanding computer speak

EDUCATION — SCIENCE

Use your PC to help your children understand healthy eating

HOW TO... MAKE A FAMILY ALBUM

Get together with your kids and research some family history

INTERNET — CINEMA

Find out where you can go to the movies on the Net

REFERENCE — CLASSICAL MUSIC

Learn about the great composers with help from your PC

COMING IN PART 2

● Setting up your PC. How do you get it going?
● Ergonomics. See how to avoid health problems.
● How to plan your garden with the latest software.
● Become a wine buff with the help of CD-ROM reference guides.

PLUS!
FREE with part 2 of *Easy PC* is a ring binder worth £5.95 so you can store all the parts of *Easy PC* to build up your easy reference guide.

AND MORE!
The second disk to add to the *Easy PC* collection of great family software, packed with FREE software and demos for all the family.

All prices and telephone numbers in *Easy PC* were correct at the time of going to press. Please check with your supplier as prices are falling all the time.

Your Easy PC disk

To install the free software on your Easy PC floppy disk just put the disk in the floppy disk drive (metal shutter first, label up). Then...

IF YOU HAVE WINDOWS 95 Click the Start button, then choose Run. Type A:EASYPC and click OK.

IF YOU HAVE WINDOWS 3.1 From Program Manager, choose the File menu, then choose Run. Type A:EASY PC and click OK.

Icons representing your programs will appear on screen. Double-click the icons to start your programs.

If you have any problems with your disk call our technical support line on 0B91 715929. Calls are charged at 49p per minute peak time and 39p at all other times. Please ensure you have the permission of the phone's owner before making the call. In the unlikely event that your disk is damaged or simply fails to run, please return it to TIB plc, TIB House, 11 Edward St, Bradford BD4 7BH, together with an SAE and two 26p stamps. Where it is a duplication fault, the postage will be returned along with a replacement disk.

Collecting Easy PC

GETTING STARTED

Welcome!

E*asy PC* is the essential guide to everything you need to know about computing for the home, the small office and, most important of all, the family. PCs are no longer a luxury. We all use them in one way or another — at work, in school and at college. Many have found their computers have become important for storing and using information and for playing games. They have even opened up totally new ways of learning.

With a computer you can do everyday things with more flair and ease. You can write letters, look after your home accounts and keep track of names and addresses. But, on top of that, there are a number of new things you can do based around the more modern multimedia computers. These allow you to find information easily, show pictures, and play sounds and movies.

Then there's the Internet, which allows you to search the world's computers for information on any topic you can think of, from football to fashion. And that's all for little more than the cost of a local phone call. You can also get in touch with other computer users worldwide and exchange information.

For many of us, computers are still seen as complicated and frightening. Yet anyone who has seen kids using their school computers will know that this can't really be true. Once you've broken through the barriers of jargon that surround using a computer, you'll find this box of electronics is no more difficult to work than a fax machine or a video recorder. And it can do a whole lot more for you.

Easy PC is here to guide you through the jargon. We'll explain in plain English what all the bits do. We'll guide you towards the products you can buy. And we'll suggest useful and fun projects you can try out. Each issue will concentrate on specific topics, from multimedia to printing, and, using the free binder that comes with Part 2, you can collect each issue to build up a complete reference work.

With *Easy PC* you'll soon find that a CD-ROM is no more a mystery than a hi-fi CD player, and that details about computer memory are something you will understand and be able to forget about. Computers are changing all the time and *Easy PC* will tell you what is worth looking for and why. Whatever kind of PC you own, *Easy PC* is for you. Whether you own a multimedia PC running Microsoft Windows 95 or an older PC running Windows 3.1, *Easy PC* will help you get the most out of your PC. ●

Your PC

APC splits into two main elements: the hardware and the software. The hardware elements are the bits of your PC that you can hold, touch and see. The computer itself, the monitor, the printer, the mouse, the modem, the add-on boards that plug into the PC, even the cables that connect it all together, are all examples of hardware.

Green PCs

They may be high tech, but computer manufacturers are aware that they have a responsibility to reduce their impact on the environment. The more responsible companies are ensuring all the packaging and plastics used are recyclable. They have removed CFCs from anywhere in the manufacturing process. Look for a computer with a 'green motherboard' which has been manufactured with this in mind.

The concern continues with the operation of the computer. Green computers and monitors automatically switch off most of their systems when the PC is not being used, so saving considerably on the amount of energy used. Like TV screens, computer monitors produce tiny amounts of radiation. Before you start worrying, the levels are far lower than you would normally get from going out in the sun. But to be on the safe side, low-radiation monitors have extra filtering built in especially to help protect people who sit in front of computer monitors all day, every day.

The *monitor* displays everything you are working on, normally in full colour. Portable computers use flat-screen LCD, or liquid-crystal display, monitors which are not based on the same technology as TV-type monitors. They produce a less detailed image but weigh only a few pounds and use little electricity.

Your PC may have internal or external *speakers* which you can use for stereo quality sound when playing CDs and games.

The *system box* contains the computer's main electronics and additional parts, like hard disks, memory and display cards.
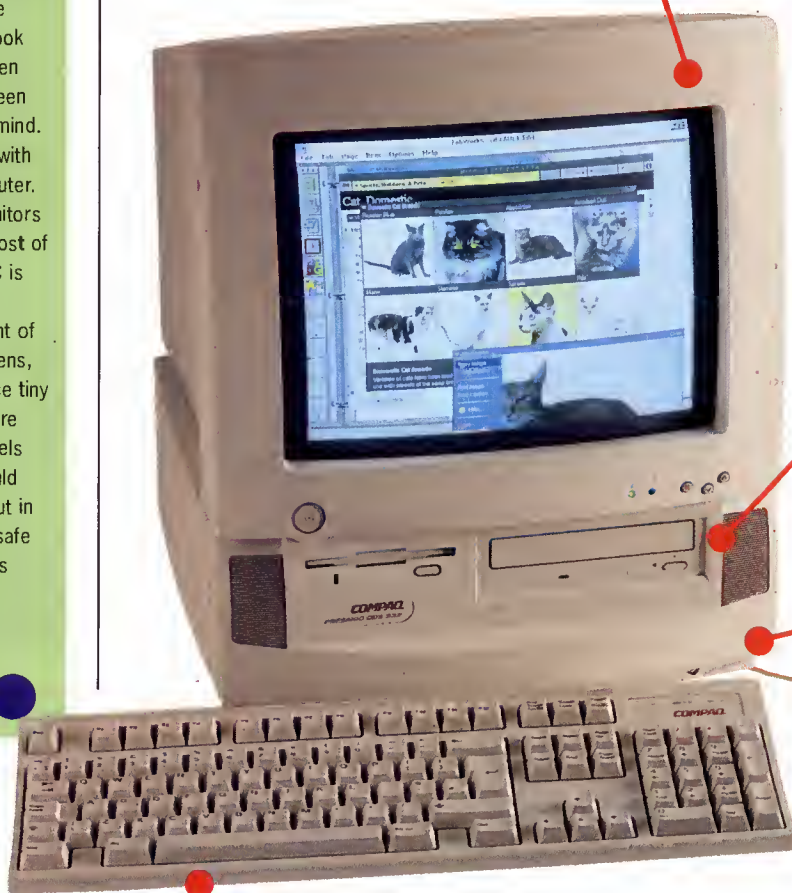
The *keyboard* is used to enter text and numbers, control the software and move around the screen.

The *mouse* is used to control the software and move around the screen. You need a mouse pad or mat, with an even but slightly rough surface to make the mouse move smoothly. This will also help it stay clean.

Why a PC?

Most people will buy a desktop PC, which is one that sits permanently on your desk, as opposed to a portable one that you carry around with you. In addition to the PC itself, you will probably buy extra pieces of hardware called peripherals, such as a printer or modem.

The *printer* prints out your documents. There are black and white and colour printers, mains and portable printers, low-cost good quality and more expensive high-quality printers.

£45 PC

The computer may also have a *modem* that connects to your telephone line. This lets you join the worldwide community of computer users or receive and send faxes.

*t*he computer we know as the PC is built around an original design created by IBM. Because IBM didn't really mind if other people used its basic concepts, many other manufacturers started producing personal computers that copied the way the IBM PC functioned. As more of these copies of IBM PCs — called clones — came on to the market, more software companies decided to start writing programs for them. In turn, that encouraged more manufacturers to make IBM PC type computers.

The situation has snowballed to the point where PCs, PC components and software for the PC are now produced by hundreds of thousands of different organisations, making them the world's most successful type of computer. This is why we will be concentrating on PC products in every issue of *Easy PC*. Providing the computer says it is a PC, whether it is made by Amstrad or Zenith, it will work in much the same way and it will run the same PC software.

Apple Macintosh

Apple started making its own type of personal computer at around the same time as the PC was born. Its system was incompatible with PC hardware and software. But Apple had a big advantage that made it successful. It was the first company to create a graphical user interface, using pictures and windows years before Microsoft Windows became popular. It also made plug-

and-play machines. This meant people did not have to buy so many extra bits and pieces to do the things they wanted to. Apple machines already had, say, a sound capability included, which made them easy and fun to use compared to the early PCs.

The Mac, as it has become affectionately known, became the preferred computer for people in the more creative fields, such as architects, musicians and designers, who needed a powerful and easy-to-use computer. The Mac is still the main alternative to the PC. There are not so many of them around because, unlike IBM, Apple was, at first, reluctant to let anyone copy the design of its computers.

The rest

While many manufacturers followed the IBM PC design, some went out on their own and developed their own computer systems. These were incompatible with the PC, so hardware and software developed for one system won't work on the other. But freed from the IBM's way of doing things, they could make home computers that were better in other respects. They are either much cheaper, better at playing games, or better at handling sound and pictures. Many of these computer systems were, and still are excellent, but tend to be used mainly by people with an interest in a specific function.

Inside your PC

Processors

The microprocessor, or processor, is the brain of the computer. It's the main chip on the motherboard, and works almost like a super calculator which does the calculations it is told to by the computer programs.

To look at, the processor resembles an After Eight mint with small pins, or metal legs, attached. You can identify which processor is which by the number on its top which tells you how powerful it is.

The first PCs were built using processors designed by Intel. Intel gave them the reference number 8086. Since then, Intel has given each new generation of processor a new number: 80286, 80386, and 80486 — now shortened to 486. Intel has broken away from this tradition with its latest generation of processors called Pentiums, although they are still referred to by some as the 586.

As well as the numbers given to processors, they are also measured by how fast they perform. This value is given in megahertz, abbreviated to MHz. The bigger the MHz number, the faster the processor.

Some software programs like word processors do not need much in the way of mathematical calculation power. Others, like spreadsheets or programs that display complex computer-created images, need lots of additional calculation power. Some 386 and 486 processors can have additional circuits, called coprocessors, to deal with these calculations. For a small cost, you can add a coprocessor to 386SX and 486SX computers to speed up their performance on mathematical calculations. All new 486 and Pentium computers have this coprocessor function already built into the main processor.

L ook inside any PC and you will see similar items of hardware. They all have motherboards, processors, disk drives, power supplies and memory chips. Many of these items are built to a fixed set of standards. This means many of the parts are interchangeable and computers can be fairly easily upgraded with additional items of hardware which just plug into the main system.

It's worth getting to know your way round the insides of your PC. There may come a time when you want to add more memory or an expansion card for a special purpose, such as a fax/modem. But remember, never open your PC when it is plugged in.

Just as on other electronic goods, the *LED* (Light Emitting Diode) lights show that the computer is on, show what speed it is running at, and monitor the hard disk's activity.

The *on/off button* switches power to the computer and its power outlets.
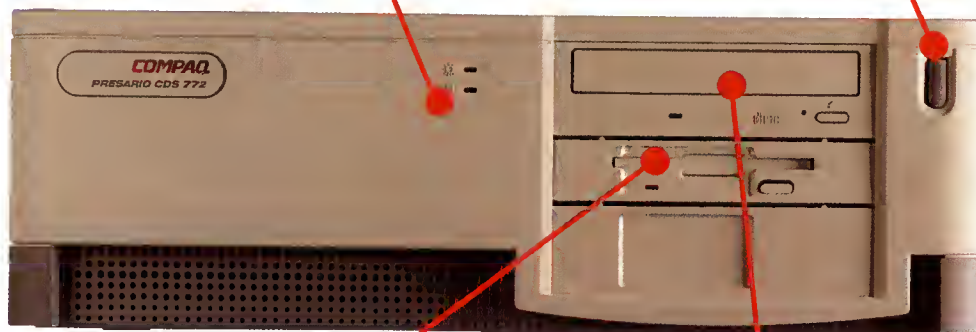
The 3.5in *floppy drive* lets you put software on your PC and store and exchange files. A floppy disk is a disk made of flexible plastic that stores computer data. It is housed in a rigid, plastic case.

The *CD-ROM drive*. CD-ROM has become an important part of the multimedia PC. Each CD-ROM disc can hold a vast amount of data, pictures, video and sound. But the standard CD-ROM discs are what is called "read only". You can only play them as you would an audio CD. You cannot store your own data on them as you can with a floppy disk. It's like the difference between a cassette tape and an audio CD. The drive can also be used to play the audio CDs you can play on your hi-fi's CD player.

The *motherboard* contains all the main electronics of your computer, including the main chip that does all the processing. The *BIOS chip* also lives on the motherboard. BIOS stands for Basic Input/Output System and is pronounced bye-oss. This chip is responsible for making sure that all parts of the computer communicate with each other. It is permanently programmed with the instructions your computer needs to follow when it is switched on and loads the operating system from the disk. It also translates complex instructions from the CPU into information understood by devices such as the keyboard.

The PC uses a small rechargeable *battery* to supply power to several special memory chips when the computer is switched off. These chips store information such as the computer's setup information and the time and date.

Additional memory chips can be plugged in to the *spare slots* to increase your PC's internal memory capacity.

Random access memory (RAM) chips are used by the computer to temporarily store the program you are using and all the data you are working on. RAM is measured in megabytes (Mb).

Expansion slots to plug in additional cards for special functions, such as a fax/modem.

The *central processing unit* (CPU) chip. This is the heart of your computer. All the real computing work is done by the CPU.

The *CD-ROM drive* is becoming standard in multimedia PCs.

In this PC, the *hard disk drive* is under the CD-ROM drive. It is the PC's permanent store of programs and data. The data is recorded on a small disk covered in a magnetic material similar to the material surface of a cassette tape. Hard disk size is measured in megabytes (Mb).

The *power supply* turns the mains power into the 5V and 12V low voltage power feeds needed by the motherboard, disk drives and the additional cards plugged into the expansion slots.

Input

The computing process breaks down into three areas: input, processing and output. Inputting to the PC gets information into the system and gives you control over the instructions you send to the computer. Processing, which is carried out by the software and the computer processor, follows your instructions to do all the things you want to do with the information. Finally, output hands the results back to you.

It's just like a washing machine. You input water, dirty clothes and washing powder, the machine washes or processes the clothes by going through various wash, rinse and spin cycles, and the output is clean clothes.

There is a whole range of devices that will feed your computer with information. The mouse and keyboard are the most obvious, but soundcards, modems, image scanners, digital cameras and keyboards are all input devices that you may use. An input device can be anything that takes information from the outside world and turns it into data that the computer can understand. Every piece of information, whether it is being entered at that moment or taken from the something prepared earlier and stored on disk, has to have first gone through an input device of some sort.

At a glance

- Keyboard
- Mouse
- Scanner
- Digital camera
- VR gloves and headsets
- TV/video card
- Modem

Keyboard and mouse

The input devices that everyone recognises are the keyboard and the mouse. The PC's keyboard is essential for typing in text and numbers. It has a typewriter keyboard, a calculator number pad, a set of function keys that allow you to do specific tasks, and a set of direction keys with arrows on for moving around the screen. The mouse is much better at the job of navigating around the screen and is good for things like drawing and painting.

Sound

Soundcards turn sound into digital information a computer can handle. They take the sound from a CD, hi-fi or microphone and convert it into digital audio in the same way that sound is digitally recorded in a studio for CD. The soundcard can take in real sound and the special MIDI information used by music synthesisers and electronic keyboards. So a PC can be used as the heart of a home music studio. MIDI stands for Musical Instrument Digital Interface. With the right soundcard you can plug a MIDI box into your computer. You can then plug the MIDI cables from your musical instruments into the box, and have an orchestra on your hands!
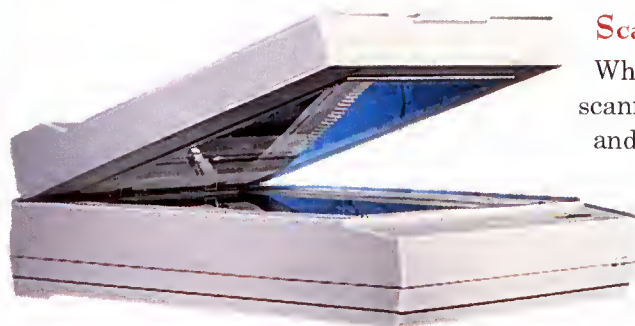
Scanners

What sound cards do for sound, scanners do for pictures. The scanner uses sensors to pick up different colours and areas of light and dark on a printed picture or slide. This produces a digital version of the image which is then passed to the PC. The scanner will scan the image into the PC in much the same way as a photocopier. Then you will be able to see the image on screen. You can also buy cheaper hand scanners which you pass over the picture yourself.

Digital cameras

Digital cameras do away with the film you would normally use in a camera. They turn the image directly into a digital picture for your computer to use. You can take a picture with one, then connect it up to your PC to download the image so you can see it on your computer screen.

Virtual reality

New input devices on the horizon include various types of virtual-reality sensors like gloves, headsets and body sensors. These pick up your body movements and send them directly to the PC. So you could feel something in your hand which isn't physically there, but the sensation is simulated by the computer.

TV and video

There are video and TV input cards so you can use your PC to watch, or even record, TV and video on your computer.
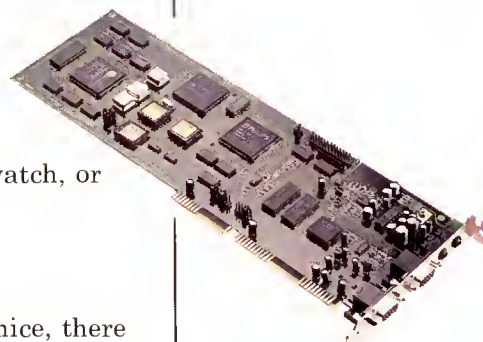
Joysticks

As well as general input devices like keyboards and mice, there are those designed for particular applications. There are joysticks and pilot controls for games and flight simulators, which are programs that simulate piloting a aeroplane.
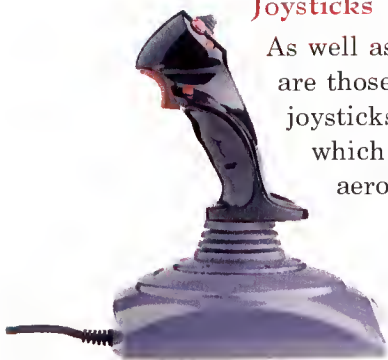
Other computers

It's not only you who can communicate with your computer. Other computers can input information too. In many offices, computers are wired together to form what's called a network of PCs. Once connected, you can take information from any of the other computers on the network and use it on your own PC.

The computers do not all have to be in the same building. By using a modem, which connects your computer to the telephone line, you can call up a computer anywhere in the world and receive information from it in the form of messages and files. This is the whole basis of the Internet, which uses the national and international phone system to create a worldwide network of computers large and small. The Internet contains every type of information you could possibly want to to have on your PC at home.

Output

Being able to input information and process it would be a pointless exercise if you couldn't get it back out of your PC. As with input systems, there are some very common output devices. You obviously can't live without something as vital as a monitor, but when it comes to printers and soundcards you may decide to buy these later. However, if you want to buy them from the start you may find that you can get a good deal from the vendor.

Monitors

No PC can be without a monitor or display. For PCs the display is a colour monitor, with more than a passing resemblance to a small colour TV. First, the computer sends the display information to the display card inside your PC. That turns it into a video signal which your monitor can display as pictures. Over the years the quality of images that a PC can produce has increased enormously. The first PCs could only show single colour text, while today's display cards and monitors can produce more detail than a good TV and show over 16 million colours.

Portable computers have a flat-screen display using technology similar to that used in calculators. The difference is that these computer screens can show pictures and not just numbers. They are available in black and white and colour.

Printers

The printer does the same job as the monitor, except the words and pictures are printed on paper rather than shown on screen.

The process is much the same. The computer sends the information to be printed to the printer card inside your PC. That turns it into an image of the page that your printer can reproduce on paper. There are two common types of printer for the home user: inkjet and laser. The best can produce copies of almost magazine quality, quietly, quickly and in full colour.

Inkjet printers work by spraying tiny dots of ink on to the paper. Inkjets are virtually silent in operation. Theycan print to a high quality and some offer the option of printing in colour, which they do reasonably well. They are not that expensive, and are the most popular type of printer for home computer users.

Laser printers work in much the same way as photocopiers. An image is beamed on to a metal drum using a small laser. Powdered ink sticks to the black areas. This is then
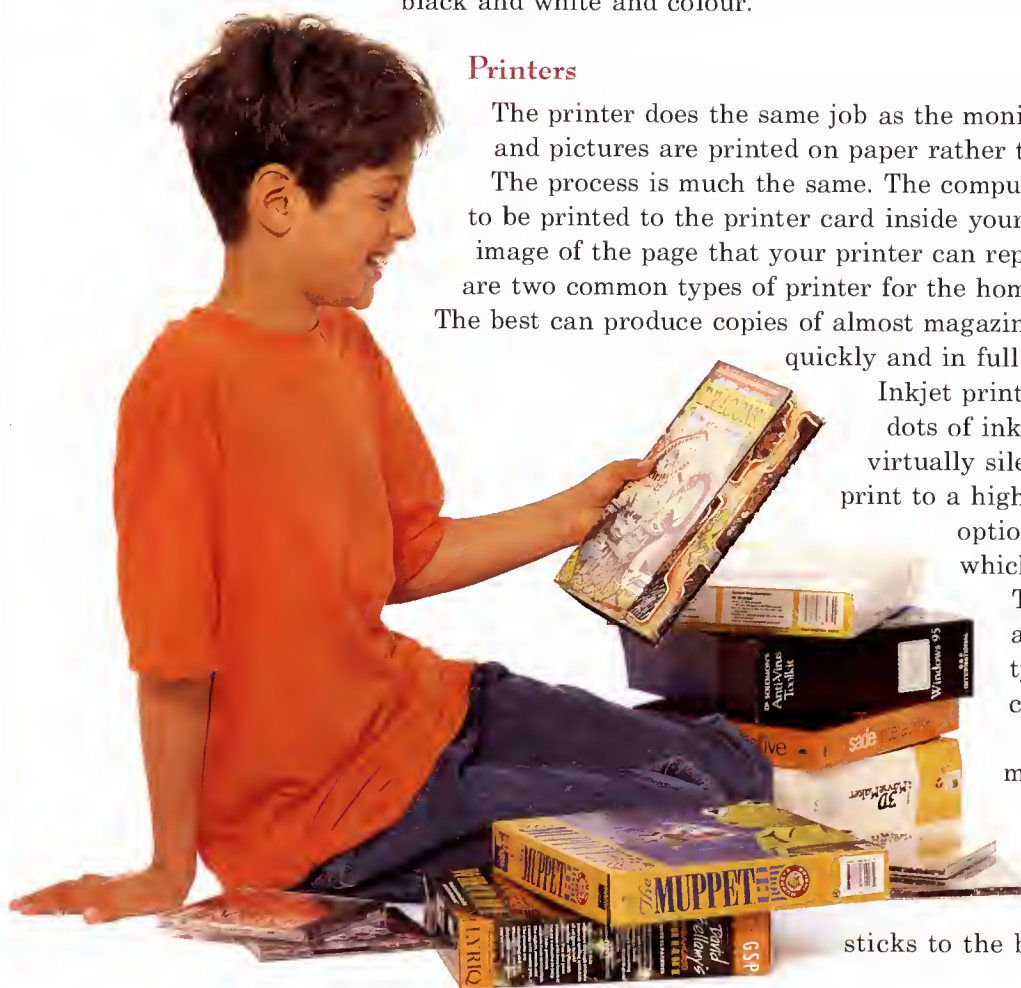
rolled and transferred on to the sheet of paper. In the final stage of the process the paper is heated and the ink powder image bonds to the paper.

Laser printers are quiet and can produce the highest print quality — ideal for graphics and desktop publishing. They are more expensive to buy, but cheaper to run, than dot-matrix or inkjet printers. They vary in how fast they are, and their speed is measured in pages per minute, abbreviated to ppm. The slowest is 4ppm, while anything above 8ppm is pretty fast. Colour lasers are also available, but at an even higher price. For both inkjet and laser printers, if you buy a Hewlett-Packard — abbreviated to HP — printer, or one that is compatible with it (meaning that it will work just like an HP printer), then you shouldn't have any problems with the software program you use clashing with the printer.

Soundcards

The soundcard that records sound and music can also be used for playback. When connected to a pair of speakers, your PC's stereo sound can be up to CD quality. PC sound is used for music and effects in games as well as educational and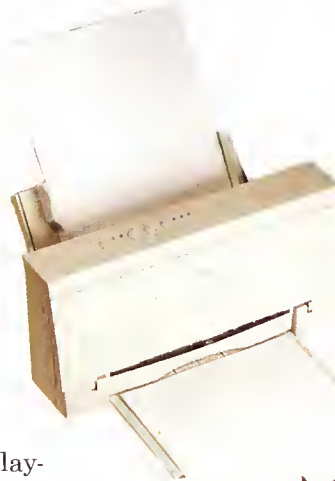 reference software. It can also add small audio cues to everyday programs to tell you that the right or wrong keys have been pressed. There is a wide range of uses for sound on the PC, but one of the most common is simply to play audio CDs while you are working!
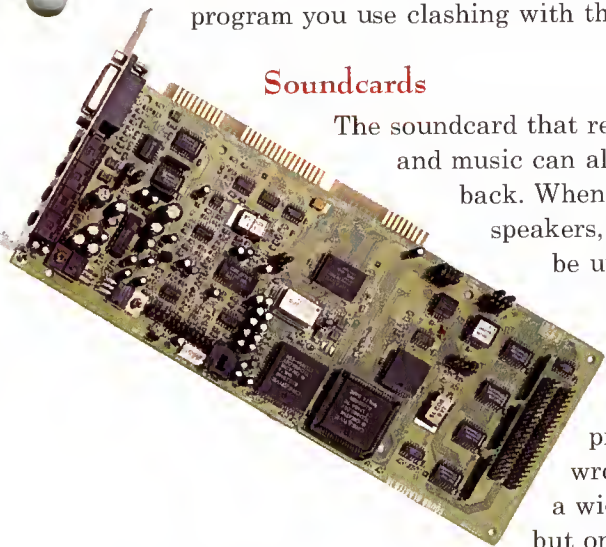
Headphones and speakers

There's no point having a sound card if you can't hear what it is attempting to output. For that you need headphones or a set of speakers. You will probably have to buy these separately. You may find that you have a set of headphones already for a personal stereo system that will fit the audio output jack on the back of your PC. You can buy all kinds of speakers, depending on the sound quality you want.

£450 PC

Processing

Processing is the job of the software and the computer's central processor. It takes the information you have entered and processes it the way you want. There is a huge range of software to handle different sorts of data in different ways, from word processing and painting, to playing music on a synthesiser via your PC. The section on software on page 10 will give you a better idea of the range of software around. But, whatever the process, every software program produces a result that has to be sent to your PC's output so you can see or hear it.

Software

Software is the collective name for all types of computer programs. Software programs are simply a huge set of instructions which make your PC do something useful. They tell your PC what to do with the information you are feeding into it, what to show on screen, and what to print.

Software is supplied on a set of floppy disks or CD-ROM discs, which you transfer on to your PC's hard disk. If you buy a PC, you should find the important software items, like Windows, have been loaded on to the hard disk.

When you want to run a particular software program, like a writing program or word processor, you turn your PC on and choose the program you need. Programs are represented by a small picture or icon on the screen. The PC finds the program on the hard disk, loads it into the PC's memory bank and gets it ready for you to use.

In *Easy PC* we concentrate on software that works with Microsoft Windows, which is the operating system used by most PCs today. Windows presents you with graphics, images, icons and lists of choices called menus, which make it easy to use. This type of software is called a graphical user interface or GUI (pronounced gooey). Since when you look at the screen What You See Is What You Get when you start printing, Windows is an example of what's become known as a WYSIWYG (wizzywig) program.

If you buy Windows-compatible programs they will work with Windows. Once you have mastered the way Windows works, you can work your way around virtually any Windows-compatible program, no matter how new it is to you.

There is a software program for every conceivable job. Each main category of software will have its own dedicated *Easy PC* issue. Here we give you an overview of the more important types of software.

Desktop publishing
If you want to produce a news letter or a magazine like Easy PC you will need a desktop publishing — usually called DTP — program. These can handle graphics and fancy lettering.
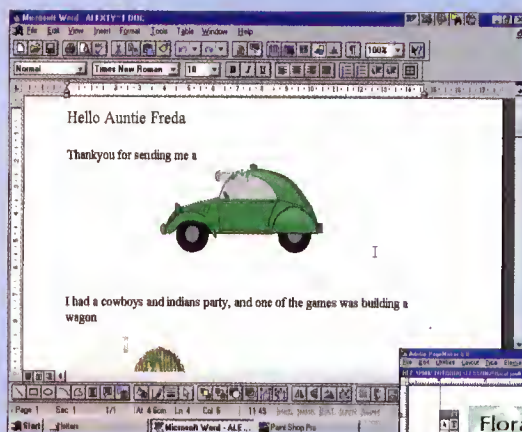
Word processors
This is software for creating *letters* and *documents*. You can type in text and make it look the way you want it to on paper. Word processors often include a spell checker. If you are not sure of your spelling, the computer will check the spellings and give you the right ones.

Spreadsheets & accounts
These are used mainly in business. They make manipulating rows of figures quick and simple. As well as doing calculations, they have excellent report printing facilities that can extract essential information and present it neatly. There are also accounting programs to help you keep track of your home finances.

Graphics

Graphics software offers limitless possibilities, from creating your own pictures to retouching photographs. Drawing and computer-aided drawing or CAD programs are ideal for creating highly accurate plans and drawings. CAD programs are usually more sophisticated than drawing programs. They often have the ability draw things in two or three dimensions, and are generally used by architects and product designers.

Games

For some, games are the best excuse to buy a computer. Most titles that are available for games consoles also have PC versions and there are many specially developed PC games with stunning visuals and sound.
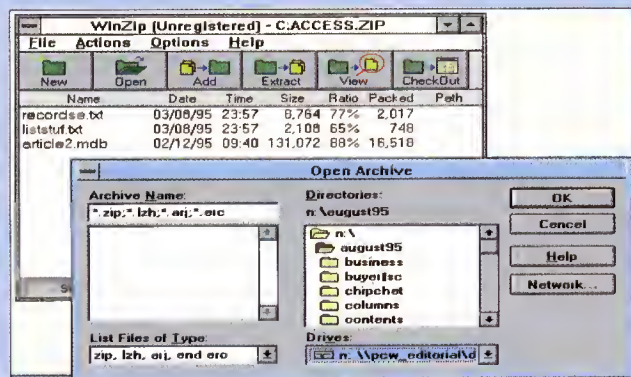
Utilities

Like most pieces of equipment, your computer needs to be maintained. Most of the maintenance work is done not with a screwdriver but with utility software. Utilities help check that everything is working OK. They can organise your hard disk and clear out unwanted programs. They will back up files to floppy disk for safety and check for viruses.
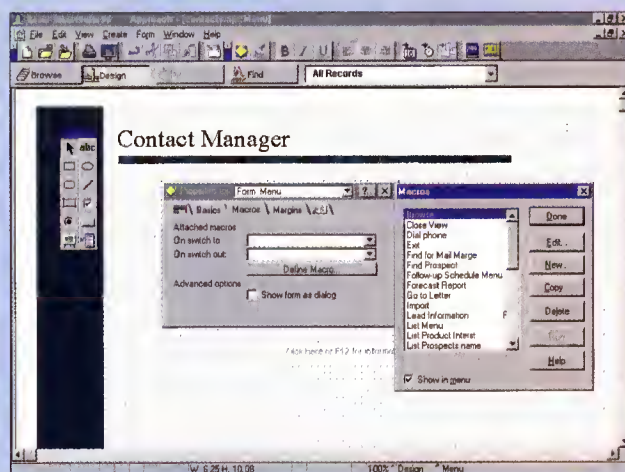
Databases

These are filing cabinet programs where you can store all kinds of lists and then instantly find anything you want. You can load in as much information as you like and then ask the program to sort out the entries. In an address book you could simply find a phone number that goes with a name.
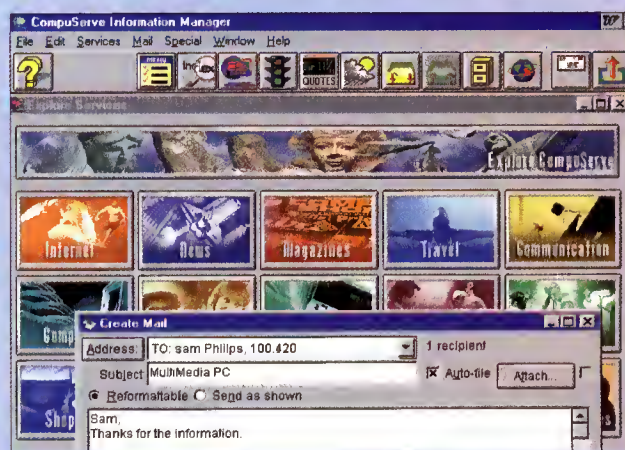
Comms

Increasingly people want to use their computers to talk with others. There is a huge range of communications — shortened to comms — software to do this. Comms software can hunt out computers across the world on the Internet that contain information you might be interested in.

Edutainment

This software merges education with entertainment. It covers topics from architecture and animals to robots and reference works. Many programs mix text, graphics, sound, music, animations and movie clips, all in one program.

Will it work?

How do I keep up?

Software is likely to be replaced much more frequently than hardware. This isn't because it wears out, but because the makers keep thinking of new things you can do with a program. When you buy a program from one of the larger software companies like Microsoft or Lotus, you can usually buy the newer version at a reduced price if you have the older version.

Some programs will run on very basic PCs. Others need lots of power and memory and several different extras such as soundcards. Check out whether the software will work on your PC by looking on the panel at the back of the box. This tells you how powerful your computer must be and what facilities it needs to run the program. If the word 'recommended' is used, beware! For example, it may say it requires 3Mb of RAM, but 10Mb is recommended. Usually this means you need 10Mb or the program won't perform up to expectations.

The program will take up at least 12Mb of *hard disk space*, so make certain you have plenty of spare room on your disk.

This program is on *CD-ROM*, so you need a CD-ROM drive to run it. All modern CD-ROM drives are at least double-speed.

To use Microsoft® 3D Movie Maker, you need:

- Multimedia PC with a 486SX/50 MHz or higher processor
- Microsoft Windows® 95 operating system or Windows NT™ Workstation operating system version 3.51 or later; product does not run on Windows version 3.1 or earlier
- 8 MB of memory (RAM)
- 12 MB of available hard-disk space
- Double-speed CD-ROM drive
- Super VGA monitor (256 colours) with local bus video
- Microsoft Mouse or compatible pointing device
- 16-bit sound card, and speakers or headphones
- Microphone required for recording

It needs a computer with a *486SX/50MHz processor* as a minimum. A faster processor will make the program run more smoothly.

When you buy a PC it will normally be loaded with *Windows*. This duplicates the functions of the older MS-DOS operating system.

It needs at least 8Mb of *internal memory* to work.

Super VGA display means the monitor and the display card must be capable of showing at least *256 colours*. This is standard on all modern PCs.

If your *mouse works* with Windows, then it will work with this program too.

This is a *multimedia program*, so it needs a set of loudspeakers or headphones to hear the sounds it contains, as well as a microphone if you want to make your own recordings.

This means you have to have a *16-bit soundcard* for this program because it has speech, music and sound effects.

What to look for

When looking at mail order ads for computers, remember to read the fine print. You could save yourself disappointment if you learn what to look out for before you place an order. Remember to check what is included in the price. If you are careful you may get yourself a bargain.

The type of *processor* inside the PC. You'll need a Pentium 75MHz as a minimum. A faster processor would be better.

The amount of *memory* included. 8Mb is the minimum you should look for, 12Mb or 16Mb will make things run more smoothly.

How big is the *hard disk*? The minimum should be 630Mb. Buy as big a hard disk as you can, you'll always find ways to fill it up.

The computer can be in a standard *desktop* case which sits on your desk or a vertical tower.

The display card should be *SVGA*.

The *inputs* and *outputs* to connect the PC to the mouse, printer or other external devices.

The computer will come with a *mouse* and a *keyboard*.
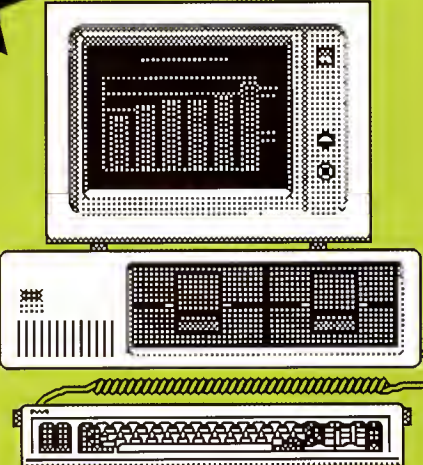
The spare slots to plug in other systems such as *modems*. There are three types of slots: ISA, VESA (VLB) and PCI. Look for the VLB, PCI or a combination of VLB/PCI.

The electronics have been manufactured with minimum risk to the environment and have a *power-management* feature.

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Check out our prices on PCs!

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£1,200

- 75MHz 32-bit Pentium processor
- 8Mb RAM
- 630Mb IDE hard disk
- Desktop case
- 512Kb Accelerated Graphics Card
- 1 parallel and 2 serial Ports
- 102-key keyboard
- Mouse
- 3 VESA Local Bus slots
- Green Motherboard

MasterCard or Visa accepted

- 3.5in 1.44Mb Floppy Disk
- 14in 0.28 pitch Low-radiation SVGA Colour Monitor
- 16-bit SoundBlaster compatible sound card
- Quad-Speed CD-ROM Drive

Includes free software!

Windows 95 loaded   MS Works

Plus 12-month on-site warranty

Call our hotline now
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NORTH STREET
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NEXT DAY DELIVERY

Make sure that the items advertised are *in stock*.

Make sure that the *price* advertised is what you will have to pay.

The *floppy drive* is used to load and store software.

This tells you how big the *monitor* is. 14in or 15in is normal for everyday use.

The *soundcard* is also an option, but essential for multimedia and games. Highly recommended.

A *CD-ROM drive* is optional, but you will need one to handle multimedia. Highly recommended.

Most computers come with *Windows 95* already up and running these days. Many dealers also add in other software, which is a cheap way of getting all the basic word-processing, database and other software that you need. Check that the manuals are included.

You may be able to pick up the computer yourself and save on *delivery charges*.

Check when the computer can be *delivered* and whether this will cost any extra.

It's safest to buy by *credit card*, though many companies charge an extra 1 to 5 per cent for this. Check that the company will not debit your credit card until the goods are sent.

Warranties vary greatly, so ask the salesperson to specify the terms of the warranty. The computer here is guaranteed for a year. On-site means the firm will repair it where you live, but check the response and that the company will lend you a computer while yours is being repaired.

It is better to send a *written order* stating the conditions of sale you want to impose such as delivery date.

What to buy

You should regard your computer as the machine you need to run your software. First decide on the sort of things you want to do with your home computer. You must decide what sort of software is going to be needed. Then you can choose a computer that is going to run that software properly.

The latest version of Windows is Windows 95. This is your starting point, as virtually everything you are going to do will run from within Windows. Windows 95 is an easy-to-use software system that controls everything you do on your PC. But making it so easy to use means it eats up a lot of computing power and memory before you even start running application software such as a word processor. If you don't have enough power or memory in your computer, then Windows and programs running under Windows may not work at all.

The most obvious way to tell if your computer is running slowly is whenever new images are shown on screen. You press a key and instead of an instant reaction, the computer busily whirs away for seconds — which seem like minutes — before anything new happens. When playing games, the animations and video footage may have slow or staggering action, and there may be breaks in the sound tracks as well.

To avoid this you will need a computer that has at least a 75MHz Pentium processor and 8Mb of RAM. The more powerful the processor, the better the system will run, and the more likely it will be able to handle the software that will come out in the future.

Most people are amazed that more RAM memory can make as big a performance difference as buying a faster processor. Many computers are

What size computer suits you?

Computers come in many shapes and sizes, and what you buy will depend on what you need it for as much as what you can afford.

Notebooks

These are portable computers light enough and small enough to fit into a briefcase. Many are as powerful as desktop computers and have a proper keyboard. They tend to be more expensive than their desktop computer equivalents.

Palmtops

Palmtop computers are more like electronic organisers. They are pocket sized and use a miniature keyboard. They are suitable for taking memos or for use as an address book, rather than for heavy-duty computing work.

sold with 4Mb of RAM as standard because it is cheaper to do it that way. But this is simply not enough to run programs under Windows properly. You must go for at least 8Mb. If you can afford it, buy 12Mb or even 16Mb of RAM from the start. You can add extra memory by buying chips to insert into your PC.

The other main item to look out for is the size of the hard disk, which is where your computer will store all your programs. Since some collections of of programs, or suites, can use up more than 100Mb of your hard disk, you will need a lot of hard disk space — at least 630Mb. If you have the option, it is worth spending a little extra to get a bigger hard disk from the outset. You'll soon find ways to fill it up.

All computers should come with a keyboard and mouse, a Super Video Graphics Array — abbreviated to SVGA — display card and monitor. SVGA is the current standard for colour monitors and means that you will be able to have a monitor with lots of colours at an affordable price.

After that there is a range of optional extras that you may want. If you decide you want to have a multimedia computer, you will also need a CD-ROM drive, soundcard and speakers. Part 5 of *Easy PC* will go into full details about what you need for multimedia. If you are interested in receiving faxes on your PC or using the Internet, you may want a modem that will connect your PC to the phone line.

It is also worth comparing the bundled software that different companies supply along with a computer. It's called bundled software because it comes with the computer, and it is often a very cheap way of buying hundreds or sometimes thousands of pounds worth of quality software.

Desktop

The most common form of PC is the mains-powered desktop computer. This sits on your desk and has one box that contains the main electronics, and a separate monitor, keyboard and mouse. The current trend is towards fixing the monitor to the system unit. Computer manufacturers are gradually packing more and more into one box. Over the next few years people will increasingly buy their multimedia PC, TV, telephone, fax and modem as an all-in-one item.

Desktops are the best value for money because it is easier to upgrade them to take advantage of the technology advances expected in the future. They are also very versatile and can be used in the office as well as the home, for games as well as finance.

The good thing about choosing a desktop that is IBM-compatible is that they all adhere to the same standards. You can run a lot of software and it is easy to buy extra RAM memory, expansion cards and peripherals such as printers and CD-ROM drives.

Where to buy

N ow you have decided that your home will not be complete without a PC, where is the best place to buy one? There are several different types of computer suppliers. None of them have a monopoly on being the best or the worst, so look for the sort of dealer that meets your needs.

COMPUTER DEALER

Computer shops vary from small local dealers which normally advertise in the local press, to the computer superstores that are springing up across the country. Smaller local shops will have a limited range of brands but can make up a system to exactly match your needs. They will test it all out and show you how it works. Although the price of the hardware is likely to be very attractive, they are less likely to be able to offer the bundled software packages that the bigger dealers can add in.

GOOD POINTS	**Local, will tailor a system to exactly meet your needs, good advise**
BAD POINTS	**Limited range of hardware, unlikely to be able to offer software bundles, can be variable in quality and reliability**

ADVICE ☺☺☺☺☺   PRICES ☺☺☺☺☺
RANGE ☺☺☺☺☺   FLEXIBILITY ☺☺☺☺☺
CONFIDENCE ☺☺☺☺☺

HIGH STREET STORES

The most convenient source of computers is the PC computer department of a major high street electrical chain, or one of the large multiple stores. You can see it and use it, and you have the confidence that you are buying from a retailer that you know is well established and likely to be there next year should you have any problems. A high street store will sell you a complete package. But if you want a variation on the theme with a different printer, more memory or a larger hard disk, you may be out of luck. There may also be a larger number of credit deals available.

GOOD POINTS	**Local, supply ready-made systems, you've probably bought other electrical goods from them before**
BAD POINTS	**Little flexibility in altering parts of a system, Knowledge not quite up to that of the specialist dealers**

ADVICE ☺☺☺☺☺   PRICES ☺☺☺☺☺
RANGE ☺☺☺☺☺   FLEXIBILITY ☺☺☺☺☺
CONFIDENCE ☺☺☺☺☺

COMPAQ
PRESARIO
5000 SERIES

All-in-one multimedia with superior
video, sound, and performance.

COMPUTER SUPERSTORES

The superstores are often located out of town and so you may have to travel. You are not going to get the same personal service as you will at your local store, but they do offer a huge range of packages and systems.

GOOD POINTS	Supply ready-made systems and made-to-order systems, reasonable advice
BAD POINTS	You are lucky if they are local, like any superstore, professional but a bit impersonal

ADVICE
PRICES
RANGE
FLEXIBILITY
CONFIDENCE

SECOND HAND

Secondhand computers are cheap and normally reliable. But because they are generally a few years old they are not likely to be powerful enough for today's needs, let alone for the future. At the moment it is unlikely that the secondhand market will throw up a really useful computer. You may save money in the short-term, but don't think of it as a long-term investment. Plus it may not be covered by a warranty if something goes wrong, and you will have no redress, just as if you were buying a secondhand car. Take along a friend who can ask the right questions, and never buy without seeing one working.

GOOD POINTS	Cheap, you could buy something with all the right parts so you don't have to buy extras yourself
BAD POINTS	No warranty, no backup, often no track record to rely on, and could be out of date

ADVICE
PRICES
RANGE
FLEXIBILITY
CONFIDENCE

MAIL ORDER

It is difficult to flick through a computer magazine without finding hundreds of companies willing to sell you PCs, peripherals and software by mail. Many of these companies have been trading for years and provide excellent service. They can match computers to your requirements, and deliver them quickly. They also have flexible arrangements to make sure you remain happy if there is a problem. Choosing a mail order supplier is no different from choosing a high street shop. Browse through the ads, phone the companies up ask them what they offer. Don't be afraid to ask for advice, and see who impresses you most. Don't be afraid to shop around.

GOOD POINTS	Specialist knowledge, can often make to your specification, lower prices
BAD POINTS	You need to know what you want, more difficult to return for repair, dealing with an unknown supplier you can't see face to face

ADVICE
PRICES
RANGE
FLEXIBILITY
CONFIDENCE

HOME SHOPPING

Some specialised companies are now demonstrating PCs and software in people's homes. The good thing is you can visit the home of one of the company's agents and see a PC in action in a relaxed atmosphere.

GOOD POINTS	Supply ready-made systems, good advice in an informal atmosphere
BAD POINTS	May not be the cheapest or most convenient way to buy

ADVICE
PRICES
RANGE
FLEXIBILITY
CONFIDENCE

Shops

● Don't be afraid to ask questions and get a feel for the people who are serving you. Do they seem really knowledgeable? Does the company fill you with confidence?

● Say what you want the machine to do. Can they show you a PC running the software you will need?

● Where possible, pay by credit card as this gives you extra protection.

Mail order

● Confirm the exact prices you are going to have to pay. You may find once you've added the carriage, the tax and any extra bits and pieces, the end price can be a shock.

● Check all the details by phone. Find out how long it will take to supply and write in a reasonable latest delivery date on your order.

● Keep a copy of the order and any letters you send. If you talk to anyone on the phone, keep a note of what was said and the person's name.

● Where possible, pay by credit card as this gives you extra protection.

Key

☺	☺	☺	☺	☺	Watch out!
☺	☺	☺	☺	☺	OK
☺	☺	☺	☺	☺	Good
☺	☺	☺	☺	☺	Very good
☺	☺	☺	☺	☺	Excellent

Shopping list

Make it easy to shortlist the type of PC that will match your needs. Tick the boxes for the facilities and functions you want, and fill in the shopping list with an idea of your requirements and the minimum and maximum specifications you think are realistic. You can then take it with you or copy it and use it when you talk to a computer dealer. It will give them a clearer idea of what you want your PC for, and help them to advise you.

Steps to buying

1. Decide which items you need to buy. Look at the shopping list, which lists all the items you need, plus any additional bits such as a modem or bigger hard disk.

2. Specify the computer itself.

3. Set a price. You may adjust this in light of your research. Initially it will be what you can afford.

4. Choose where to buy, whether from a mail order supplier, high street retailer or dealer.

5. Check prices by studying advertisements in newspapers and computer magazines, and adjust your budget if necessary.

6. Make your purchase.

Your *Easy*PC Checklist

Hardware

	MINIMUM	RECOMMENDED	HIGH-PERFORMANCE
PROCESSOR	☐ 75MHz Pentium	☐ 133MHz Pentium	☐ 200MHz Pentium
RAM	☐ 8Mb	☐ 16Mb	☐ 24Mb
HARD DISK	☐ 630Mb	☐ 1.2Gb	☐ 2Gb+
MONITOR	☐ 14in	☐ 15in	☐ 21in
GRAPHICS CARD	☐ 1Mb Video	☐ 2Mb Video	☐ 4Mb Video
PRINTER	☐ Black and white Inkjet	☐ Colour Inkjet	☐ Colour Laser
SOUNDCARD	☐ 16-bit	☐ 16-bit Wavetable	☐ 16-bit Wavetable
CD-ROM DRIVE	☐ 4-speed	☐ 8-speed	☐ 12-speed
FAX/MODEM	☐ 14,400bps (V32)	☐ 28,800bps (V34)	☐ 28,800bps (V34)/ ISDN
SCANNER	☐ Handheld colour	☐ Document colour	☐ Flatbed ☐ Colour
WARRANTY PERIOD	☐ 6 months	☐ 12 months	☐ 3 years

Extras

GAMES JOYSTICK	☐ No		☐ Yes
LOUD SPEAKERS	☐ No		☐ Yes
COMPUTER ACCESSORIES	☐ Disks		☐ Disk boxes
	☐ Manuals		☐ Mouse mat
PRINTER ACCESSORIES	☐ Connecting cable		☐ Spare ink/toner

Software

INTEGRATED PACKAGE	☐ Yes	☐ No
WORD PROCESSING	☐ Yes	☐ No
DESKTOP PUBLISHING	☐ Yes	☐ No
GAMES	☐ Yes	☐ No
EDUTAINMENT	☐ Yes	☐ No
DRAWING & PAINTING	☐ Yes	☐ No
ACCOUNTING	☐ Yes	☐ No
SPREADSHEETS	☐ Yes	☐ No
DATABASES	☐ Yes	☐ No
COMMUNICATIONS	☐ Yes	☐ No

PRICE   £ _____

CARRIAGE   £ _____

VAT   £ _____

TOTAL   £ _____

NAME OF SUPPLIER _____

TELEPHONE NO _____

Inside Windows
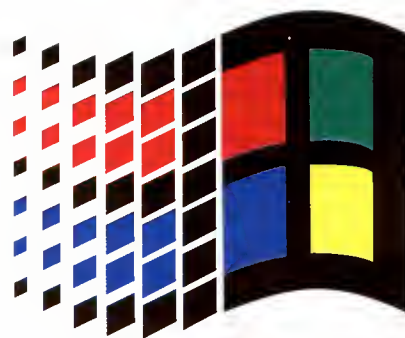
There's no escape from it, Windows is everywhere. Even in the pub you'll find people boasting about their screen saver and holding forth about their wallpaper. This series will help you get up to speed with Windows fast, and keep up with the discussions in the pub.

Windows is a replacement for a system called DOS which was the only way of controlling PCs when they were released in the early 80s. DOS was horrible. Not only were you forced to use the keyboard to control the PC, you first had to learn the commands to type in. These were very hard to remember. Windows is a graphical user interface (known as a GUI, pronounced 'gooey') which allows you to drive the PC with a mouse on your desk and graphical images on the screen.

But what does Windows do? It has been described as an 'enabler', which is ugly but descriptive. Windows, in isolation, doesn't do very much. On its own it doesn't let you write letters, keep accounts or catalogue your record collection. But it does enable you to run the programs — or, as they are sometimes called, applications — which allow you to do these things. So, if you want to write a letter, you use a word processor from within Windows. If you want to keep your business accounts on the PC, you can use an accounting program under Windows.

Windows is a sort of shell, within which programs run. The more you learn about Windows, the more smoothly you can run the programs you need. Why? Think of it like a car. The engine (program) does the work, but you drive the car with the steering wheel and pedals (Windows) rather than directly with the engine. We'll be looking at how you can control Windows itself, and set it up to suit your way of using your PC.

It is worth learning to do that because Windows is very powerful. It provides the interface for all the programs that you run (*see Easy Windows*). Once you understand the interface to Windows you have the basic knowledge needed to run all Windows programs. In addition, Windows is the glue that allows your programs to work together.

Suppose that you are using a word processor to write a letter to the bank manager asking for a loan. In another program you have all the figures which justify your requests to the bank for the money. Windows enables you to pick up the relevant numbers from the second program and drop the figures into the letter. Even if some of your data is in graphical form (say a graph of your earnings and expenditure), you can still move it into the letter.

When you start up your PC you'll be faced with the Microsoft Windows system. Here's a simple step-by-step guide to using it.

Windows comes in several versions. It has been updated over the years to make it more powerful and easier to use. The most recent version is Windows 95, so we'll be concentrating on that.

Let's assume that you have just bought a PC with Windows 95. Having had the fun of unpacking the computer and plugging it in, you turn the PC on. After some clicking and whirring, you should see a screen which looks like Step 1.

Easy WINDOWS

INTERFACE

Also known as the user interface. The look of the screen and the controls you are given on screen to help you control the computer. For example, Windows uses pictures which look like push buttons on the screen, and you can use the mouse to press them. These buttons form part of the user interface, as do many other controls which we will meet in subsequent issues.

ICONS

Windows uses small pictures, or icons, to represent things which will be of interest to you, such as the programs which are available for you to use.

WINDOWS

Windows with a capital W signifies the complete package which we called Windows, whereas windows with a small w refers to the rectangular objects which appear on the desktop in which programs run.

MOUSE

Small device bearing two or three buttons, which sits on your desk and is connected into the back of the computer via a cable. As you move it around, the mouse cursor on the screen moves accordingly. You can use the mouse to control Windows.
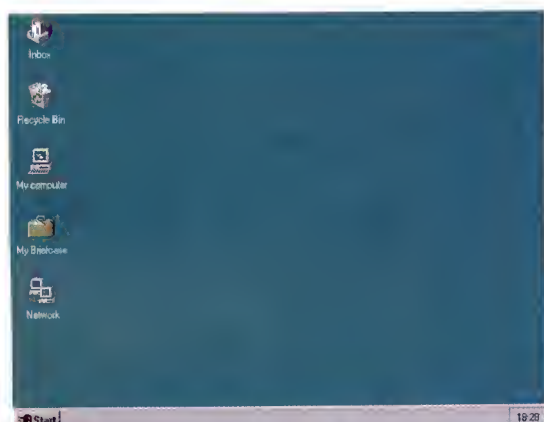
STEP 1 A typical opening screen in Windows 95.

Your screen may differ from this, but that should not worry you. Windows is meant to be configurable — that means it can be changed to suit the PC you have. The supplier of your PC may have configured it for you already. For example, the supplier may have put a picture on the background, or there may be extra icons (*see Easy Windows*).

There is a limited number of different things which can appear on the desktop (which is essentially the menu bar and the background area on the screen). Step 2 shows all of them. We'll be looking at them in detail, but the ones you can probably see on your screen are the desktop, some icons, and the Taskbar.

The best way to learn what these bits do, and learn how to use Windows itself, is to start doing practical things. We'll start by opening up a word processor, as an example of a program, and closing it down again. "Just a minute!" you cry. "We've just been told that Windows is only an enabler. How can it be a word processor as well?" It's a fair question. The truth is Windows is not a word processor. But the company that makes Windows, Microsoft, includes several free programs with Windows in order to get you started. These include a word processor and several games.

If you use the word processor that comes with Windows, you'll find the Taskbar at the bottom of the screen. On the left of the Taskbar is a button labelled 'Start'. You need to press that button to get started. There is a possible area of confusion here, because we have real, physical buttons on your mouse, and buttons, which are part of the interface, on the screen. We could say: "Position the mouse cursor over the interface button labelled 'Start' and then press and release the left-hand button on the mouse." But that's going to get

STEP 2 All of the common items that you are likely to encounter when you use Windows.

A *shortcut* is a way of navigating rapidly around Windows.

A *window* is a rectangular working area on the screen, normally containing one application and one document.

An *icon* is a little picture to represent something.

A *folder* is a container for icons and documents.

A *document* is an icon representing your data which could be a picture or a sound clip. Double clicking on this will take you to it.

The *taskbar* typically appears at the bottom of the screen. But you can move it by clicking on it, holding down the mouse button, and moving it to any of the other three edges of the screen

really tedious. The good news is that Windows has evolved its own verbal shorthand. People would shorten all of this to something like "click the Start button". It's shorter and neater, so we'll adopt the same convention. Press the Start button.

A menu — that's a list of choices — should appear. This menu will stay in place, even if you remove your finger from the button, and you can move the mouse cursor over the menu. As you do so, different options will become highlighted. If you click on one, or just allow the mouse cursor to linger, a sub-menu will appear — at least, a sub-menu will appear for all of those options which also have a small arrow on the right.

The first four options on the menu shown in Step 2 have an arrow, so they have a sub-menu. This is the first of many conventions that you should remember.

Work your way down the menu system so that you have selected

Programs and Accessories as in Step 3. One of the Accessories is a program called WordPad, so click that option. After a brief pause the program WordPad will appear in a window, ready for you to use it.

For the moment, don't use the word processor to write anything, we'll get to that next time.

To close the word processor, find the small button in the top right corner labelled with a cross and click on it. To close Windows entirely, click the Start button again and select Shut Down. A new window will appear, and you can click on the Yes button in that window.
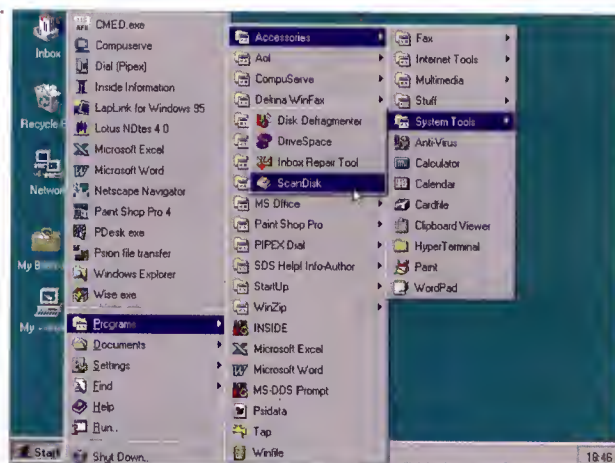
STEP 3 This is the Windows menu system that you are likely to see from the Start button, giving you a list of choices.

A

A:

The letter used to denote the first disk drive on the PC. A PC has two or three disk drives. One floppy disk, called A: and one hard disk called C:. If you have a second floppy disk, this is called B: and a CD-ROM drive is D:. When talking about the different disk drives, you say "drive A" for the floppy drive, but normally write "A:". When your PC starts up it will show what's called the C-prompt (which looks like C:\> on your screen). This means you are looking at the hard disk. If you want to change to drive A: to read data from a floppy disk, enter A: and press Return. *(See also C:, Floppy disk, Hard disk.)*

Ac

Accelerator card

A method of speeding up an old PC by replacing the existing processor chip with a special add-in card that has a newer, faster processor. *(See also Upgrade.)*

Accelerator, accelerator key

A combination of keys that, when pressed together, carry out a task that otherwise you would have to select from a menu using a mouse. For example, instead of selecting the File menu then the Save option, many programs let you use the accelerator keys Alt and S to do the same thing and save the file.

Access time

The time taken to find and retrieve a particular piece of data from memory or a hard disk. Memory chips have an access time of around 100 nanoseconds (ns). However, access time is normally used for hard disks as a way of giving some idea of the hard disk's performance. With hard disks, the average access time is often quoted. Measured in thousandths of a second (ms), this is the time it typically takes for the drive to get to a part or sector of the disk after the computer has requested that particular sector.

Account

If you are connected to a network, or if you use a bulletin board or electronic mail system, then you have a personal account. Rather like your bank account, this has a password that only you know, together with an account name that identifies you. Your account will also hold records of your rights to access parts of a network and will store any electronic mail that you receive. If you are a new user on a network, you will have to ask the person controlling the network to create an account for you.

Accounting

One of the most popular applications is the automation of accounting and bookkeeping. Packages typically mimic traditional practice, using disk files to simulate paper ledgers. Microsoft's Money and Inuit's Quicken programs both make it simple to produce professional-looking reports and accounts and are very easy to use.

Acoustic coupler

A type of modem that has rubber cups that fit on the mouth and ear-piece of a telephone. This converts data from the PC into sound that is then transmitted across the phone network to another computer with a modem. Most modems plug directly into a telephone socket and provide better quality sound, which means that they are more reliable. An acoustic coupler sends data more slowly than a modem. But it is useful if you are travelling and need to use public phones to send data.

Active window

The section of a screen that is currently being used. In Microsoft Windows, the active window is in front of any other window and has its title bar (at the top of the window) coloured blue. Windows which are displayed but are not active have a white title bar.

Ad

Adapter, adapter card

Card that plugs into an expansion bus in a PC and adds a new function to the computer, or allows it to communicate with another device. A soundcard is a type of adapter card that plugs into an expansion connector and allows sound to be played back or recorded.

Add-on, add-in

An item of equipment that connects to a computer, more properly called a peripheral. Add-in is sometimes used to distinguish devices which fit inside the computer rather than plug into it. Some software packages are designed to allow add-on or add-in parts to be purchased that add extra features to the original program.

Address

A number which identifies a particular storage location in a computer's memory. Each location can store one byte of data (that's eight bits) and most PCs have four megabytes, or 4Mb, of main memory — that's four million separate addresses. Other parts of a computer system are often identified by numbers or addresses.

Address book

List of other users on your network or electronic mail system. Your address book stores their full names together with their unique electronic address.

Address bus

A set of electrical lines between the computer's processor and the storage devices. The bus normally has 24 or 32 separate lines to select any one of the millions of possible addresses; the addresses are selected by the processor. The number of lines in the address bus — also called its size or width — dictates how much memory can be accessed directly. *(See also Bit, Data bus.)*
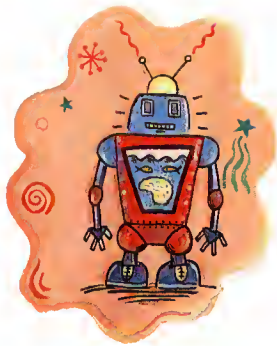
Adobe Type Manager (ATM)

Software standard that is used to describe the shape of fonts — the typefaces — and how they can be re-sized to almost any size without changing the quality. Adobe is a software company that developed products including the Adobe Illustrator graphics program and PostScript. *(See also PostScript.)*

Ai

AI, Artificial intelligence

The design and development of computer programs that attempt to imitate human intelligence and decision-

making functions, providing basic reasoning and other human characteristics.

Al

Algorithm

A method or procedure that solves a particular problem or performs some desired task. Programmers write instructions to implement particular algorithms in their programs. The choice of algorithm affects performance, memory requirements and so forth.

Align

To line up text so that either the left- or right-hand margin is level. If text is left-aligned, all the characters line up on the left-hand side, but don't on the right-hand side. If text is justified then the text lines up on the left- and right-hand edges.

Alt key

A key on a PC's keyboard used to activate special functions in an program. The Alt key has become the standard method of bringing up the menu bar in any software running on a PC. For example, Alt-F normally displays the File menu of a program, Alt-X normally exits the program.

An

Analogue

A signal whose value can vary continuously over time rather than taking a fixed value. For example, when someone speaks, the sound wave is an analogue signal; it varies smoothly as the person speaks. In contrast, a gear box is a digital device; a

car can be in first, second, third or reverse but not in "first-and-a-half". PCs will only work with numbers so cannot directly deal with analogue signals. In order to get around this, you need to fit an analogue-to-digital convertor (A/D convertor). For example, a sound card contains an analogue to digital converter to convert the sound signal from the microphone into numbers representing the volume.

Analogue monitor

Monitor that accepts analogue video signals and so can display an almost infinite range of colours. Both VGA and SVGA monitors are analogue, whereas older CGA and EGA monitors are digital and can only display a limited range of colours. *(See also VGA, SVGA, CGA and EGA.)*

Analogue to Digital Conversion (ADC)

A special electronic circuit that converts an analogue signal (such as a sound signal from a microphone) into a numeric form. It looks at the height of the analogue signal thousands of times every second (a process called sampling) and storing the height as a stream of numbers.

ANSI

Stands for American National Standards Institute. An organisation that produces various formal standards for the computer industry. ANSI is best known to PC users for its screen control standard which is provided with DOS in the form of ANSI.SYS.

ANSI.SYS

A piece of software called a device driver that is supplied with DOS and allows programs to use special character sequences to change the colour and position of characters displayed on screen. ANSI.SYS also provides extra controls for the keyboard and is used to improve the look of a program.

Animation software

Software that lets you draw several separate frames, each slightly different, and then display them one after another in rapid succession to give the impression of movement.

Anti-aliasing

A technique used to reduce the jagged edge that appear when circles or curves are displayed or printed out. Anti-aliasing fills these gaps with a shade of the colour so the eye blends these together to give the impression of a smooth curve.
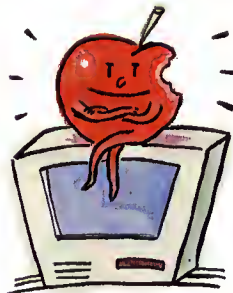
Anti-virus software

Software that will hunt out any viruses on your PC and destroy them. *(See also Virus.)*

Ap

API

Stands for Application Programming Interface. A set of standard and functions that a programmer can use to control software or hardware.

Apple Macintosh

A popular range of personal computers developed by Apple Computer. Although a Macintosh uses a different family and make of processor from IBM-compatible PCs, a Macintosh can run Windows software using special programs or an add-in board.

Applet

Term used to refer to small utilities within Microsoft Windows. An application, in contrast, is a full program that you might use every day.

Application program, application software

An application program or application software is a program that makes the computer do useful work, such as a word processor or a spreadsheet.

Ar

Architecture

The general design of a processor, piece of software or computer system.

Archive

To make a backup — a copy — of important data and store it away from the computer in case of a fire or burglary. There is a difference between an archive and a backup. With a backup, you still keep and use the original file on your PC; an archive is for files you want to keep, but don't use and so you move the file off your PC and store it on a disk or tape.

Archive attribute

One of the attributes stored with any file on a PC. The archive attribute is set to "1" whenever the file is changed and acts as a reminder to the user or to tell backup software that a file has changed since the last backup and so needs to be backed up again. After copying each file, the backup program sets the archive attribute to "0" so the file won't be backed up unless it is changed.

Argument

You will often see a description of a new command and the word "arguments". This refers to what you type in after the command. For example, with the line "DIR LETTER.DOC", the command is DIR and the argument is "LETTER.DOC".

What's on the label?

You can use your PC to help your children learn about the energy and nutrients in the food we eat.

Anyone who has gone on a diet will be used to reading the labels on the packages and tins that they pick up in the supermarket. You'll find they list things like the energy, protein, carbohydrate, fat, fibre and sodium contained in 100g (3.5oz) of the product. If you've got a spreadsheet program like Microsoft Excel, or an integrated program like Microsoft Works which contains a spreadsheet, then together with everyday food items from your larder you can help your kids realise which foods they eat contain energy and nutrients.

To start, just go to the larder and pick out some of your favourite foods, from cornflakes to a tin of baked beans or a bag of crisps. Look at the label on the back and decide which areas you want to look at, say the energy levels per 100g (En. KJ/100) and the carbohydrates per 100g (Carb. g/100).

Then in your spreadsheet make a column listing the various foods: cornflakes, baked beans, sweets, cheese, milk, crisps and so on. In the next column list the energy levels. In a third column list the carbohydrates. You may have to alter the column widths to make sure the words fit.

Then all you have to do is go to the Charting option and select Scattergraph. The spreadsheet will do the rest
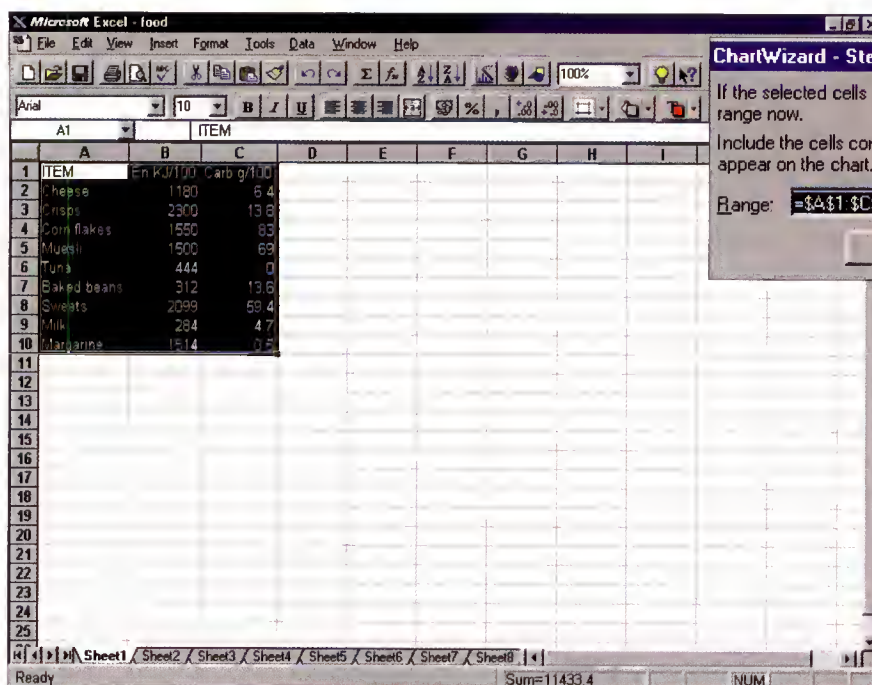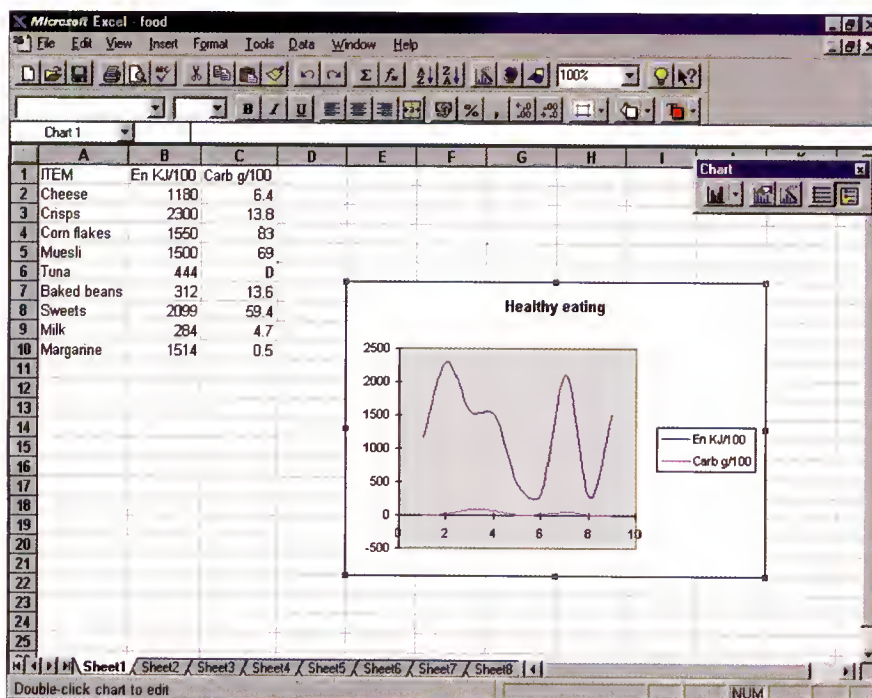
STEP 1 Start by entering the information from the food labels into the spreadsheet, then highlight all the cells (drag the mouse over them with the button held down). To make sure everything's visible, choose Column and Auto Fit Selection from the Format menu.

STEP 2 With everything highlighted, click on the Chart Wizard button and draw the outline of a box where you want your chart to appear. You'll see a box like this. Don't worry about the numbers and letters. Work your way through the wizard, by pressing the Next button, choosing the options you want on your graph.

STEP 3 This is the finished result if you choose a scattergraph. Try some of the other options to see the best way to look at all the information.

gives them enough energy and a balanced diet. You could gather some products that claim to be reduced fat, low calorie or high fibre and work out what that means, and whether they are what they claim to be.

Older children could even suggest ways a nutritionist who has to prescribe diets for the overweight, sick or elderly, could use a spreadsheet to make their job easier.

While doing this project, children may need some help in understanding terms such as fibre, sodium and vitamins. This presents the ideal opportunity for a visit to the local library, book shop or health centre, where they can look up what different things mean in books and leaflets.

WHAT YOU'LL NEED

Software: Spreadsheet
Other: Printer, a collection of food labels, reference books to explain the meaning of the nutritional elements in food

WHAT WILL YOU LEARN?

● To understand that foods contain energy and nutrients and that these vary between different foods.
● To look at what the nutritional information on the label tells you about its energy content.
● The role of carbohydrates, fats and protein in the provision of energy.
● Which foods contribute most towards the intake of energy.
● How to use a spreadsheet.
● How to draw scattergraphs.

and you will soon have a scattergraph up on screen which will show the different levels of carbohydrate in each kind of food related to the energy level.

You can take this further if you want. Add a third column and make a new scattergraph comparing, say, the amount of fat, sugar or protein, and see which line gives the best fit.

You can use this information as the starting point for a number of projects. Children could use it to devise a menu for a climber going on an expedition where they can onl;y take a small amount of food.

In a classroom each child could calculate whether the food they eat

Living history

Use your PC to make family history come to life.

You can use your computer to help create a family album and get children interested in social history. History isn't all about kings, queens, battles, dates, corn laws and the Industrial Revolution, but about people. Ordinary people like Grandma. It's about the places she went, the things she bought, the movies she watched and the clothes she wore. At the same time you can use your computer to produce something of value and acquire computer skills along the way.

To start, get Grandma or Grandad to remember an incident from their childhood or youth. This could be their first day at work, their favourite memory, what they were doing when the first men landed on the moon, or when Kennedy was shot. If you can, take along a tape recorder to record the story.

Back at home, type out the story with your word processor. You can use the Write applet that comes free with Windows. But this is only a simple word processor. If you can, use a more sophisticated word processor with the ability to produce newspaper-type columns and insert boxes. It will be much more fun. A fairly powerful word processor needn't cost a fortune. It could even cost less than a quick family meal at your local pizzeria.

Once you or the children have typed out the story, get the kids to write down what they think about it. Get them to draw pictures based on incidents in the story. If your word processor is able to, insert boxes into the text of the story and get the kids to add their observations, maybe using a different size or style of font to differentiate them.

You could also try to get a photo of your kids with the relative who told the story. Try to get a photo of the relative at the time the incident took place. These photos and your children's drawings can then be scanned and inserted into the text.

If you don't have access to a scanner at work, shop around and you'll probably be able to buy a hand-held black and white one quite cheaply. The alternative to buying a scanner is to go to a copyshop that offers a photo-scanning service.

Once you've written the story, and you've got your pictures in place on the page, all you have to do is add a few captions and choose how you want the album printed. The result is a very special present for Grandma next Christmas or birthday.

If your kids enjoy the exercise you could go one step further and visit the local history department of your local reference library and see if they have a photos of the area in Grandma's childhood. Look at some newspapers from the period — maybe even from the very day of the incident. Take some photocopies which you can scan in to the album to give a background of what was happening in the world at that time. You could even look at the advertisements in the newspaper, especially those for products and shops that no longer exist, and ask for photocopies of them too.

Focusing on the life of a grandparent and where they lived, looking at the shops that were once there and the things they sold, and bringing that street alive with memories, makes history something your child can relate to. It can also give Grandma a record of people, places and things that will make that memory all the more precious.

This sort of project can be embraced by schools to build a record of the local community. Families have a vast collection of valuable historical material. That photo of Great Auntie Ethel may not be of interest in itself, but she may be standing in front of a long demolished building. Who knows, the finished collection of memories and pictures could come to form a prized part of the local history collection at the library. It might even get published.

WHAT YOU'LL NEED

Software Word processor
Other Tape recorder, access to a scanner, drawing materials, old photographs
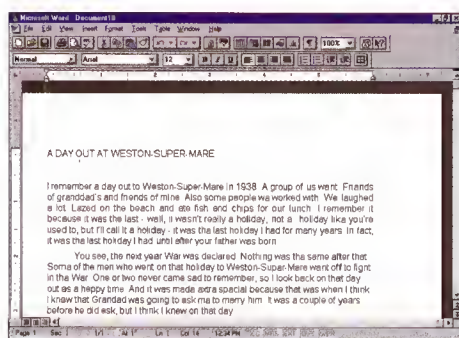
How to make a family album

The Family Album is something you can begin creating straight away. But the beauty of a computer is that it is so easy to edit your story, move bits of it around, and carry on improving it as you get more information.
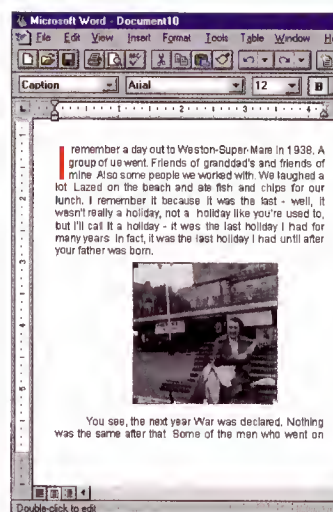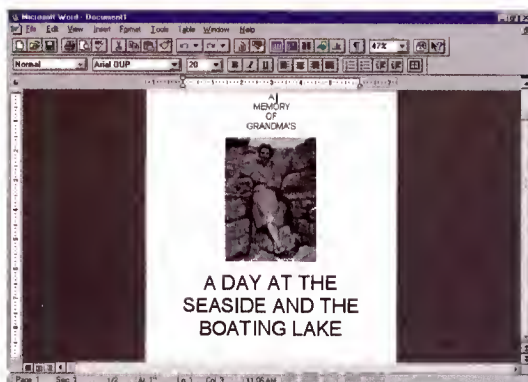
STEP 1 Visit Granny and get your material — the story.

STEP 2 Write Granny's story using your word processor. A simple word processor like Word for Windows will do. You must be able to import graphics.

STEP 3 Try centring your headline by highlighting the text and clicking on the Centre button. Add a big capital letter by clicking on the size button next to the font name — here Arial OUP. Then add some colour by going to the Format menu and choosing Font then Colour.

STEP 4 To change the paper size to landscape go to the File menu, click on Page Setup and choose Paper Size. Click on Landscape and OK. To add columns go to the Columns button and choose the number of columns.

STEP 5 Add a picture by clicking on the Insert menu. Choose Frame which brings up a box on screen. You can resize this by clicking on the corners. Click on Insert again and choose Picture. Select the picture you want — you may have to change to the directory in which you stored your picture. The picture will appear in the box.

STEP 6 Another picture and we are beginning to see what the book will eventually turn out to look like. You can add further information as you get it.
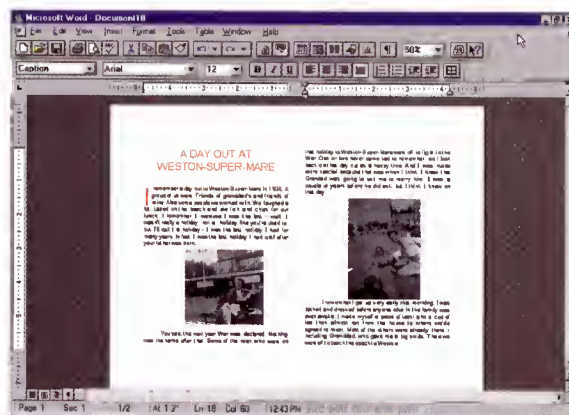
WHAT'S A SCANNER?

Scanners are like photocopiers except that instead of copying an image on to paper, a scanner copies it into your PC. You can then use software to manipulate the picture — maybe enlarge part of it or apply a special effect.

You can get black and white or colour scanners and they come in three types. A hand-held scanner is the least expensive. A sheet-fed scanner grips the paper or photograph and rolls it over the scanning eye. This resolves a lot of the problems with hand-held scans caused by your hand shaking or an uneven scanning surface. But the downside is that you can't scan a mounted photograph or bound illustrations and text. The third type of scanner is a flatbed scanner, which looks just like a photocopier. Flatbed scanners are the most expensive, but prices are dropping dramatically and you can buy a colour flatbed scanner reasonably cheaply.
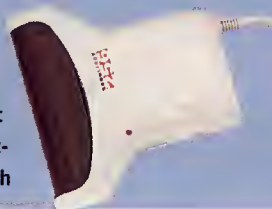
//cinema.

At the movies

Going to the movies isn't something that you'd necessarily associate with the Internet. But there is a wealth of information available, whether you're a die-hard movie fan, or you just want ideas about what video to rent, or what's on in your area.

Yellow Pages

There's more to the Yellow Pages than just a phone book. The World Wide Web site also provides a list of films currently on release. And if that's not enough for you, you can click to say which part of the country you live in and find out what films are playing in the cinemas in your area. You can even find out

Find out all there is to know about movies at the click of a button.

whether a particular film is being shown, and what time it starts. There are also links from the Yellow Pages film finder to information about movies all over the Net, including an

The Internet Movie DataBase tells you everything you need to know about films.

electronic version of Flicks, the magazine that's given away at most cinemas. It may not look as good as the printed version, but it's packed with facts to help you find out what's worth seeing.

Internet Movie DataBase

You might not want to go out and watch a film. You fancy a night in with that one where the girl and boy throw rocks at the old house. Hmm... You know, James Stewart was in it.

Never fear! Consult the Internet Movie DataBase, which is probably the largest film site on the Internet. You can search for films based on who was in them, when and where

How to find information on the Net with Magellan

Once you've started to explore the Internet, you'll soon realise that there's a huge amount of information out there. Finding the right things can be very hard.

Fortunately, there are lots of Web pages on the Net that act as 'search engines'. These are systems that try to locate information based on categories that you select, or words that you type in. Even with a search engine, you could still be left with a list of hundreds of pages to view, and a fair proportion of them might be useless — or completely unsuitable for your family.

Magellan is one of the newer searching systems on the Internet, and it's designed to make things much easier to find for people who don't want to wade through huge lists of information.

To use Magellan, just click the Open button on your Web browser and type in http://www.mckinley.com/ then press the Enter key. The main Magellan screen is shown in the picture. It lets you search for information by typing in a word or phrase, like 'childcare' and clicking on the Search button. It's important to remember that if you type in two words, Magellan will list

Magellan gives a green light to Internet sites that are suitable for all the family.

information that includes either word, so 'Virgin Mary' would find pages that included Virgin or Mary as well as pages that include Virgin and Mary. If you only want to see pages with both words on them, enter '+virgin +mary'. You can also use the '—' symbol to leave out pages with certain words, like '+virgin +mary —herod' to see the same pages, except any that mention Herod.

You can also start with one of the categories, such as Daily Life and browse through until you find what you're looking for. There's even a KidZone category where you know that every site is going to be suitable for your children to look at.

That's one of the best things about Magellan. Unlike some search pages that just give you a long list of places to visit, many of the best pages are accompanied by reviews, so you know whether they are worth a look.

The most important feature of all is the Green Light. All the sites that are suitable for the whole family have a green light next to their listing, so you know that if you click on the link, you won't get a nasty surprise at what comes up on the screen.

20th Century Fox will let you take a studio tour on the Internet, or browse through X Files merchandise.

you all about the latest films, and also all the other Disney products, like computer programs based on the films, and the latest information about all the theme parks.

Or you could visit 20th Century Fox site, and catch up on the latest movie gossip, or experience an online version of its studio tour, complete with a 'virtual reality' version of a New York street scene that you can walk around in on your PC. If you prefer to stay seated, the Movie Talk Cafe is a place where you can chat with other people about gossip, stars and films, or send your comments about the latest pictures straight to the people at Fox.

Over at Sony, you can read about the releases from film studios like Columbia, including *The Cable Guy* with Jim Carrey. And on top of all this, there are even sites dedicated to just one film, like the ID4 pages, which tell you all about *Independence*

they were made, and even search through the plots of thousands of films to find ones that mention a specific subject.

There's a rating system for each film, and unlike the ratings in most guides, you can vote for films yourself. There are also details of any glaring mistakes in the films, quotes, and information about whether or not it's available on video. If you don't feel like a walk to the video store, you can even click on a link and jump to sites that will let you order a video or laserdisc online!

Blockbusters

For most people, the cinema is about the big blockbusters. The Net won't let you down when it comes to finding out about those too. All the big film companies have sites on the Internet, with different amounts of information about their films. For instance, the Walt Disney Web pages tell

The Internet

The Internet (Net) or World Wide Web (Web) is something everyone will have heard about. In Part 6 of Easy PC we explain what it is and how to use it. Then you will be able to read this regular section for information on the best places to visit.

Day and provide links to plenty of background information about the film. In the case of ID4, that means lots of information about aliens and UFOs, including the famous Roswell Incident, where an alien spaceship crash-landed in America.

Let's talk

There's a lot more to movies on the Internet than just Web pages from the film companies. There's a whole set of forums — called newsgroups — where you can join in talks with people from all over the world, covering every aspect of movies, like the people in them, reviews, special effects and why films now simply aren't like they used to be.

The main discussion group is called rec.arts.movies.misc and all you have to do is to tell your newsreading program to pick it up. If you have a suitable browser, you can read it by clicking the Open button then typing news:rec.arts.movies.misc. Remember, though, it's sensible to read discussions for a while before saying anything. Just like listening to people talk at a party before butting in with your own comments.

Whatever you want to know about movies, whether it's the starting time at the Odeon, who directed *The Wizard of Oz*, or if the film we mentioned earlier was *It's a Wonderful Life*, the Internet has the answer.

WHERE TO LOOK

If you want to find the sites mentioned on this page all you have to do is type in the following to find them. These are called URLs, which stands for Uniform Resource Locator.
● Magellan
www.mckinley.com/
● Yellow Pages film finder
www.yell.co.uk/yell/ff.html
● Flicks Magazine
www.flicks.co.uk/

● United International Pictures
www.uip.com/
● Sony Pictures
www.spe.sony.com/Pictures/
● 20th Century Fox
www.fox.com/
● Disney
www.disney.com/
● Independence Day
www.id4.com/
● Internet Movie Database
www.imdb.com/

The newsgroups mentioned, can be found at the following locations.
● news:rec.arts.movies.misc
● news:rec.arts.movies.announce
● news:rec.arts.movies.reviews
● news:rec.arts.movies.people
● news:rec.arts.movies.movie-going
● news:rec.arts.movies.past-films
● news:rec.arts.movies.current-films

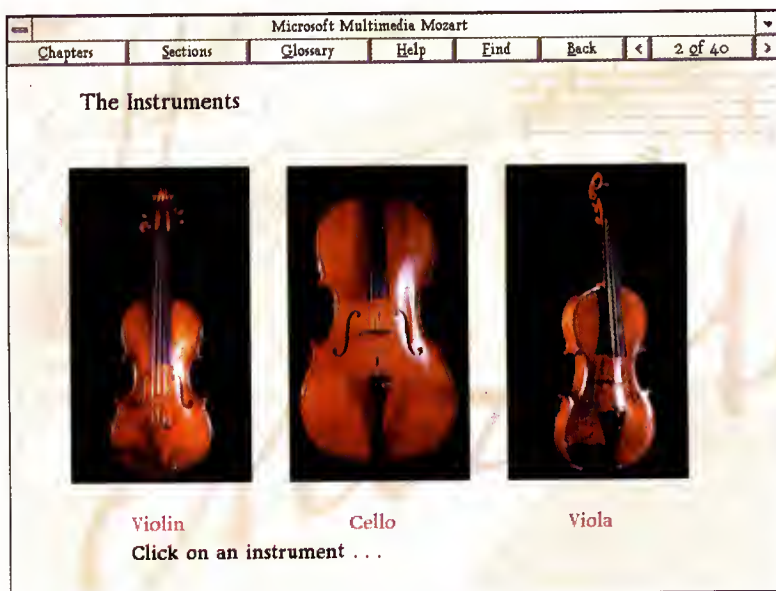All sites were active at the time of going to press.
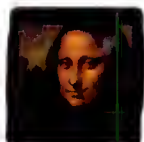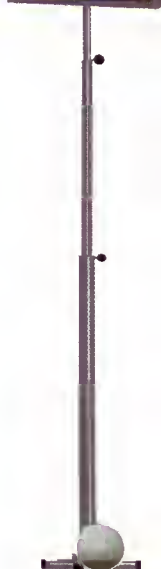
Classic sound

Your PC scores as you can learn about and listen to music.

Over the past few years thousands of people have discovered classical music. What once was considered a high-brow pastime for buffs is becoming more popular. Gorecki's Third Symphony sold enough to get into the pop charts and was followed by a double album of Gregorian chants.

Your PC can help you and your family learn more about the great composers. A PC with a CD-ROM player can do things with music that can't be done as well with anything else. A video can play you the music and give you pictures, but it can't cover a topic with the breadth possible with text. A book can describe a piece of music, tell you all about its composer, and even reproduce the score, but it can't let you hear the music. All this is possible with CD-ROM.

A CD-ROM player lets you play CD-ROM discs, just as an audio CD player allows you to play CDs. Like an audio CD you can hear music whenever you want. So, if you like something or don't understand something and want to hear it over again, you can do so.

But CD-ROM discs don't just contain sounds. You can have all other kinds of information on them: movies, text, still images and graphics. And because of the way these are combined on the disc you can find your way around them in a number of ways. A feature offered by many titles is the ability to gather information by year or by country. So, if you want to read about all Spanish 17th century composers, there's nothing to stop you.

The Instruments

Violin   Cello   Viola

Click on an instrument . . .

Microsoft Multimedia Mozart — Chapters | Sections | Glossary | Help | Find | Back | 2 of 40

You can hear how different instruments sound.

You can use your PC to help you find your way around the wealth of information on the disc. If you start reading about a composer and then you want to know what a harpsichord looks like, you can ask it to find one by selecting the relevant button and keying in what you want your PC to look for.

Microsoft Musical Instruments

This is a superb all-round introduction to music, featuring over 200 instruments from around the world. You can quickly locate any musical instrument, see a picture of it and hear what it sounds like, whether it's playing rock or classical. The disc includes rare and exotic instruments such as the conch shell and zuma. There are more than 500 photographs of instruments. Plus you can flit from one instrument to another, then return to the beginning.

The Attica Guide to Classical Music

The Attica Guide to Classical Music is a guide to composers. It features over 60 composers, audio excerpts from over 200 works and video performances.

The disc provides a lot of information. There's a history of Western classical music and there's a Timeline button so you can trace the development of music over the ages.

Viking Opera Guide

Opera lovers can enjoy much the same approach with the Viking Opera Guide on CD-ROM. The guide is a well-respected book and the CD-ROM transfers the book to disc, giving you all the text, pictures, maps and sound.

The guide covers more than 800 composers, lists the complete operatic works of each, and examines over 1,500

operas in detail. You get more than 300 pictures and over three hours of music. The performances feature some of the greatest names in opera, such as Luciano Pavarotti, Placido Domingo and Maria Callas, among others.

The guide is very easy to use. There are comprehensive alphabetical lists of composers, operas, librettists and places. You can see how opera developed over the centuries, search by country, or whatever category you like. Particularly valuable is the pronunciation guide and glossary of foreign opera terms.

The Firebird and Petrushka

Stravinsky was not unknown to Diaghilev. In the spring of 1908, Stravinsky had written an orchestral work, *Fireworks*, to celebrate the wedding of Rimsky-Korsakov's daughter. Diaghilev attended the première (which also included Stravinsky's *Scherzo fantastique*) and, suitably impressed, invited Stravinsky to join his advisory board. For the first season of the Ballets Russes, Stravinsky orchestrated piano works by Grieg and Chopin for Diaghilev. ▶

Les Sylphides to music of Chopin, partly orchestrated by Stravinsky (1909) Culver Pictures, Inc.

Easy cross referencing helps to explain a work.

Composers Series

The jewels in the crown of classical music on CD-ROM are the multimedia composer series from Microsoft and Mindscape. These discs make listening to classical music more rewarding and enjoyable by exploring the life and work of the composers themselves.

Microsoft's offerings include Beethoven (Ninth Symphony), Mozart (Dissonant Quartet), Stravinsky (Rite of Spring), Strauss (Three Tone Poems) and

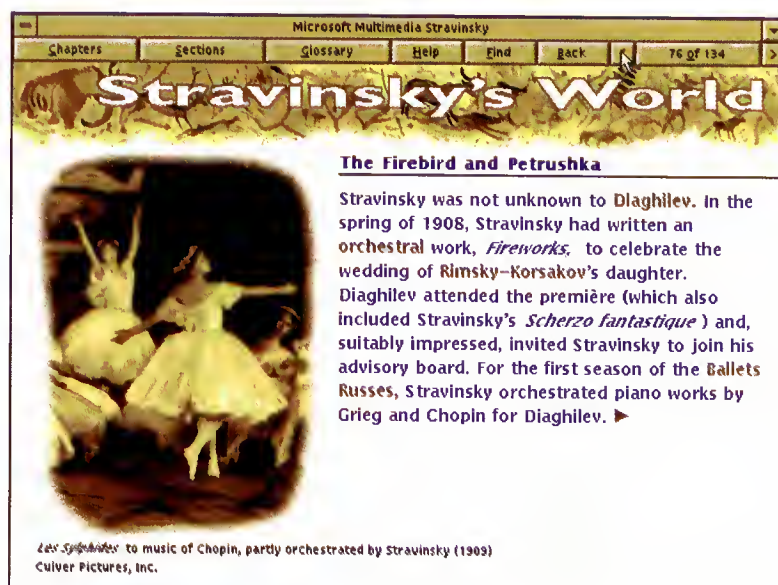Schubert (Trout Quintet), while Mindscape offers Beethoven (Fifth Symphony) and Tchaikovsky (1812).

Microsoft's discs are pretty similar in format, although there have been several enhancements as the series has progressed. Acting as your guide on the Beethoven disc, for example, is the famous professor of music, pianist and broadcaster Robert Winter.

The Pocket Guide section lists the major parts of each of the four movements of the

symphony. A Close Reading is a commentary describing the symphony in greater detail. You can move forwards or backwards, or check the glossary of musical terms and hear an example. The Art of Listening explains the inner workings of the music and uses examples from the Ninth Symphony to illustrate general musical concepts. Beethoven's World is the story of Beethoven's life and times. Finally, there's a game to test your knowledge.
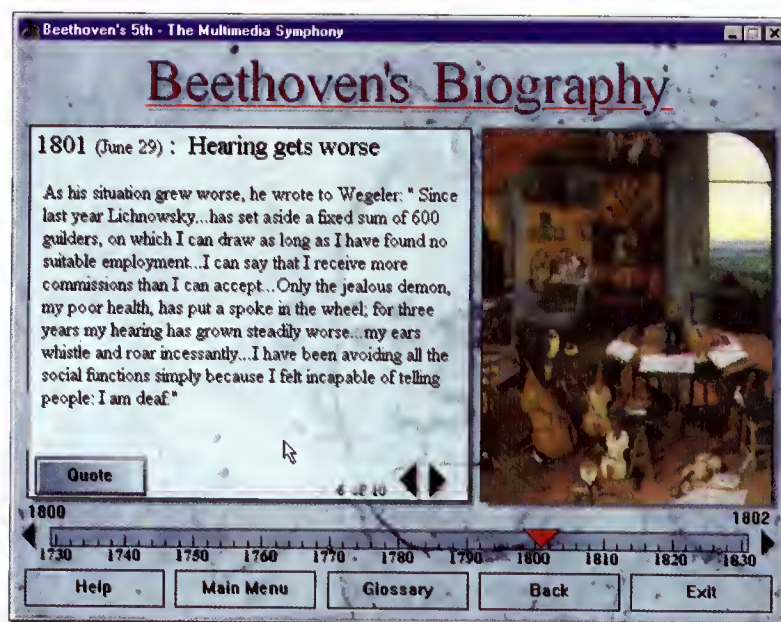
You can read about a composer like Beethoven's life and times.